Statement of Samuel W. Bodman
Secretary of Energy
Before the
Committee on Energy and Commerce
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Mr. Chairman and members of the Committee, I am pleased to be before you today to present the President's fiscal year (FY) 2009 budget proposal for the Department of Energy. The strength and prosperity of America's economy is built on the security of our nation and the reliability of energy sources. Since 2001, the Administration has committed $183 billion through the Department of Energy (DOE) to help drive America's economic growth, provide for our national security, and address the energy challenges that face our nation. The Department of Energy's FY 2009 budget request of $25 billion stays on course to address the growing demand for affordable, clean and reliable energy; preserve our national security; and enable scientific breakthroughs that could have significant impacts on our quality of life and the health of the American people. The FY 2009 budget was developed to continue to meet these goals.

In FY 2009, the Department will advance the President's American Competitiveness Initiative aimed at ensuring U.S. technological competitiveness and economic security, and implement the Advanced Energy Initiative, to accelerate the research and development of clean energy technologies to diversify our nation's energy supply. These efforts, combined with investments to meet our commitment to protect the United States as stewards of our nation's nuclear weapons stockpile and to environmental cleanup, will foster continued economic growth and promote a sustainable energy future.

This budget, while focused on delivering results to meet the nation's priorities, also serves as the roadmap for the future of America's energy security. The FY 2009 budget request translates into investments that will:

- Expand research, development, and demonstration of cost-effective carbon capture and storage,
- Accelerate technological breakthroughs outlined in the Advanced Energy Initiative,
- Provide enhanced energy security through the expansion of the Strategic Petroleum Reserve,
- Continues to foster scientific leadership with the American Competitiveness Initiative,
- Advance environmental cleanup and nuclear waste management,
- Maintain the safety and reliability of the nuclear weapons stockpile and continue transforming the weapons complex, and
- Work with other countries to prevent the spread of weapons of mass destruction.

To highlight, in FY 2009 the Department of Energy continues to meet this vision and strengthen the framework built over the last eight years to ensure our national energy security and reliability. The FY 2009 budget request:

- **Invests in Climate Change Technologies**
  In support of the Administration's initiatives that support climate change technology and to implement the U.S. Climate Change Technology Program's Strategic Plan, the FY 2009 budget emphasizes a two-pronged strategy for its climate change technology programs: invest in carbon dioxide (CO_2) mitigation technologies for coal with carbon capture and storage (CCS) and in nuclear power, and invest in near-term, CO_2 mitigation technologies focused on improving energy efficiency. The budget provides $407 million to research and $241 million to demonstrate advanced coal technologies which includes cost-effective CCS for coal-fired power plants. The Department also continues to help work with the Department of the Treasury to administer $1.65 billion in investment tax credits from the Energy Policy Act of 2005 that will accelerate commercial deployment of technologies that are central to carbon capture and storage.

  Through international collaboration, the United States strives to maintain a leadership role in promoting and deploying clean energy technology domestically and around the world. President Bush believes that the greatest progress will be assured by working together with other nations to advance the related objectives of improving economic and energy security, alleviating poverty, improving human health, reducing harmful air pollution, and reducing the growth of greenhouse gases. The United States, Australia, China, India, Japan, Canada, and South Korea work to implement the objectives of the **Asia-Pacific Partnership** (APP) on Clean Development and Climate. This Partnership is helping to advance the President's goal of developing and accelerating the deployment of cleaner and more efficient technologies and practices. It builds on existing multilateral climate initiatives including the Carbon Sequestration Leadership Forum, the International Partnership for a Hydrogen Economy, and Methane to Markets. In FY 2009, the Department is requesting $15.0 million, evenly divided between the Fossil Energy Program and the Energy Efficiency and Renewable Energy Program, to continue to support this important initiative.

- **Advances the American Competitiveness Initiative**
  In 2007, President Bush launched the American Competitiveness Initiative (ACI) to encourage innovation throughout the economy and to give America's children a firm foundation in math and science. A request of $4.7 billion in FY 2009, $748.8 million above the FY 2008 enacted level, will increase basic research in the physical sciences that will have broad impacts on future energy technologies and environmental solutions. ACI funding will support the construction and operation of world-class scientific facilities and will support literally thousands of scientists and students -- our current and future scientific and technical workforce. Scientific and technological discovery and innovation are the major engines of

increasing productivity -- indispensable to ensuring growth, job creation, and rising incomes for American families in the technologically driven twenty-first century. This investment is essential if the United States is to maintain its world-class, scientific leadership and global competitiveness.

- **Accelerates the Advanced Energy Initiative**
  At a request of $3.2 billion, $623 million above the FY 2008 enacted appropriations of $2.5 billion, the President's Advanced Energy Initiative (AEI) will continue to support clean energy technology breakthroughs that will help improve our energy security through diversification and help to reduce our dependence on oil. The FY 2009 budget for AEI includes funding to promote the licensing of new nuclear power plants and research on an advanced nuclear fuel cycle. Also, AEI's diverse energy portfolio includes investment in making solar power cost-competitive with conventional sources of electricity by 2015 and supports a robust vehicle technology program that includes developing lithium-ion batteries, plug-in hybrids, and drive-train electrification.

- **Expands the Resurgence of Nuclear Energy**
  Nuclear energy is an important source of energy in the United States and is a key component of the AEI portfolio. Nuclear energy is free of greenhouse gas (GHG) emissions, safe, and reliable, and currently supplies about 20 percent of the nation's electricity. The Department is leading the Administration's efforts to spur a nuclear renaissance in the United States to meet energy and climate goals. We continue to work with industry partners to promote the near term licensing and deployment of the first new nuclear plants in over 30 years, as well as to extend the life of current plants. Furthermore, the Department is developing advanced, more proliferation-resistant nuclear fuel technologies that will maximize energy from nuclear fuel. These technologies will further support the expansion of nuclear power as a safe, efficient, and cost-effective source of energy capable of supporting continued economic growth in the 21st century. In FY 2009, a total of $1.4 billion is requested for nuclear energy activities including $487 million for the Mixed Oxide Fuel Fabrication Facility.

  It is critical to note that the growth of nuclear power is only possible if we continue to develop a responsible path for disposing of spent nuclear fuel. Therefore, $494.7 million is requested in FY 2009 for the continued development of the geologic waste repository at **Yucca Mountain**, Nevada, and to support the defense of the License Application that we will submit in 2008 to the Nuclear Regulatory Commission for authorization to construct the repository.

- **Transforms Our Nuclear Weapons Complex**
  The FY 2009 budget reconfirms the Department of Energy's steadfast commitment to the national security interests of the United States through stewardship of a reliable and responsive nuclear weapons stockpile and by advancing the goals of global non-proliferation. Through the National Nuclear Security Administration (NNSA), the Department directs $6.6 billion in this

request for **Weapons Activities**, a $320.6 million increase from the FY 2008 enacted appropriation, to meet the existing requirements for stewardship of the nation's nuclear weapon stockpile, technologies and facilities, as well as to continue to transform the nuclear weapons complex with the goal of a much smaller size by 2030. This transformation effort is structured to achieve President Bush's vision to create a more efficient and less expensive nuclear weapons complex of the future that is able to respond to changing national and global security challenges.

- **Reduces the Risk of Weapons of Mass Destruction (WMD) Worldwide**
  The Department has provided $1.8 billion in this request for detecting, securing, eliminating and disposing of dangerous nuclear materials around the world. The amount includes $1.2 billion within Defense Nuclear Nonproliferation, $487 million within the Office of Nuclear Energy, and $117 million funded in Weapons Activities. The Mixed Oxide (MOX) Fuel Fabrication Facility project remains a key activity of the nation's nuclear nonproliferation efforts. The FY 2009 request for MOX is $ 208.2 million more than the FY 2008 enacted appropriation reflecting continued support for this project. Further, the request provides significant out-year growth to fulfill our international agreements and accelerate our work to reduce the risk of (WMD) threats. Among many advances, the FY 2009 budget provides for the installation of radiation detection equipment at an additional 49 foreign sites in 14 countries and at 9 additional Megaports; continues to implement an aggressive, prioritized work schedule to complete all shipments of Russian origin spent highly-enriched uranium (HEU) fuel stored outside reactor cores by the end of 2010; and maintains a schedule allowing completion of the construction of the second of two fossil-fueled power plants located in Zheleznogorsk, Russia, in 2010. The Seversk project is scheduled for completion by the end of December 2008.

- **Meets Our Commitments to Public Health and Safety and the Environment**
  During my first days at the Department of Energy, I announced safety as my top priority and the number one operating principle of the Department. To implement my vision, I created a new **Office of Health, Safety and Security**. Ensuring the safety of workers across the DOE complex is my top priority and this new office will go a long way in strengthening our safety and security organization. We must be world class not only in how we carry out our mission, but in the safe, secure, and environmentally responsible way in which we manage operations at our facilities across the country. The organization's FY 2009 budget request of $446.9 million, builds on a number of actions the Department has taken over the past two years to increase safety of DOE workers.

  The FY 2009 budget includes $5.5 billion for the **Environmental Management** program to protect public health and safety by cleaning up hazardous, radioactive legacy waste left over from the Manhattan Project and the Cold War. This budget allows the program to continue to make progress towards cleaning up and closing sites and focuses on activities with the greatest risk reduction. By the end of

2009, cleanup projects at Sandia National Laboratory and Argonne National Laboratory will be finished.

As the Department continues to make progress in completing clean-up, the FY 2009 budget request of $186 million for **Legacy Management** supports the Department's long-term stewardship responsibilities and payment of pensions and benefits for our former contractor workers after site closure.

In light of the increased number of sophisticated cyber attacks directed at all facets of our communities, from military to civilian to private users, the Department is taking significant steps to secure the virtual pathways and mitigate the threat from cyber intrusions. Implementing these steps will be seamless and will not interrupt the availability of information systems resources while preserving the confidentiality and integrity of the information and their contents. A budget request of $157 million in FY 2009 supports the Department's efforts to defend against emerging, complex cyber attacks. Through these efforts, the Department will be in a better position to effectively manage and monitor cyber risk across the complex. In FY 2009, DOE will increase support on a Department-wide basis to deploy new cyber security tools and cyber security management activities to detect, analyze, and reduce the threat across the complex.

PROMOTING AMERICA'S ENERGY SECURITY THROUGH RELIABLE, CLEAN, AND AFFORDABLE ENERGY

The FY 2009 request will deliver a balanced and diverse portfolio of solutions to strategically address the urgent energy and environmental challenges facing our country today. Our goal can be met by: 1) accelerating the development of clean and renewable energy technologies to dramatically increase the amount of clean energy produced in the United States; 2) advancing energy efficient technologies and practices that use less energy; and 3) providing information from research, development, and demonstration activities, which could help stimulate private sector choices that will drive change in our energy systems. DOE's applied energy programs are taking pro-active steps to catalyze the advancement of these important technologies through research and development, innovative partnerships, international cooperation through the **Asia Pacific Partnership**, and collaboration with states, industry leaders, and other stakeholders.

The budget lays the groundwork for implementing key elements of the Energy Independence and Security Act of 2007 (EISA). It contains elements that are unprecedented in size, scope and timeframe for increasing our energy security, diversifying our energy system and making America's energy systems stronger, safer and cleaner for future generations. We can further advance the U.S. commitments made at the U.N. Climate Change Meeting in Bali and the Major Economies Meetings to employ clean energy technologies in the global effort to reduce greenhouse gas emissions.

Consistent with the President's initiatives and the EISA, the FY 2009 budget contributes to key elements of the American Competitiveness and Advanced Energy Initiative that

will help reduce our dependence on foreign sources of energy, and change the way we power our homes, businesses, and automobiles.

The proposed Office of Energy Efficiency and Renewable Energy (EERE) budget of $1.255 billion provides a diverse portfolio of solutions to our challenges, including:

Fuels and Vehicle Solutions (Biomass, Vehicles, and Hydrogen programs: $592.3 million)

- Advancing essential R&D projects to achieve cost competitive, commercial scale cellulosic ethanol production by 2012;
- Conducting R&D on lithium-ion batteries, plug-in hybrids, and drive-train electrification to diversify and make our nation's vehicles more efficient to reduce petroleum dependency;
- Continuing to research and develop critical hydrogen technologies that enable a commercialization decision in 2015; and
- Supports fuel testing and validating codes and standards that will help accelerate new fuel and vehicle solutions to the market.

Renewable Power Solutions (Wind, Solar, Geothermal, and Water Power programs: $241.6 million)

- Integrating renewable energy technologies with energy storage technologies to resolve the intermittency challenge;
- Supporting wind power R&D to enable wind turbines to produce an increasing amount of the nation's electricity;
- Investing in solar power to make photovoltaics widely available nationwide and commercially cost-competitive with conventional electricity by 2015;
- Accelerating a refocused geothermal program that conducts enhanced geothermal systems R&D; and
- Pursuing water power technologies as part of EERE's R&D portfolio.

Efficiency Solutions (Buildings and Industrial Technologies programs: $185.9 million)

- Reducing energy consumption and transforming the carbon footprint of the built environment through the development of zero energy buildings; and
- Supporting the advancement of clean and efficient industrial technologies and processes that will drive a 25 percent increase in U.S. industrial energy productivity by 2017.

Our energy portfolio also recognizes the abundance of coal as a domestic energy resource and remains committed to research and development to promote its clean and efficient use. Because coal in the U.S. accounts for 25 percent of the world's coal reserves, the FY 2009 request focuses on carbon capture and storage.

- Integration of advanced **Integrated Gasification Combined Cycle** (IGCC) coal technology with **Carbon Capture and Storage** remains the foundation of the Department's clean coal research program to establish the capability of producing electricity from coal with near-zero atmospheric emissions. The Administration

remains strongly committed to **FutureGen** and is requesting $156 million in FY 2009. An additional $407 million is requested within the **Coal** program to support research and development on technologies that support the concept.

- The Coal program continues to fund large-scale demonstrations through the **Clean Coal Power Initiative** (CCPI) with $85 million requested in FY 2009 to support a Round 3 solicitation which will focus on demonstrating carbon capture and storage technologies.
- As part of the greenhouse gas mitigation strategy, the Department continues the **Carbon Sequestration** program through its large-scale field testing, and will inject carbon dioxide into several types of geological formations. Within the $407 million requested for coal research and development activities, the Department is requesting $149 million for continued work in this area.

Consistent with the FY 2006, 2007, and 2008 budget requests, the FY 2009 budget request continues to shift resources away from oil and gas research and development programs, which have sufficient market incentives for private industry support, to other energy priorities. Federal staff, paid from the program direction account, will work toward an orderly termination of the program in FY 2009.

To further assure against significant oil supply disruptions that could harm our economy, this budget also proposes $171.4 million for expanding the Strategic Petroleum Reserve (SPR) to an ultimate capacity of 1.5 billion barrels by 2029. In FY 2008, DOE will use available balances for the purchase of additional SPR oil and will continue to fill using federal royalty oil until 727 million barrels is achieved in FY 2009. Capacity expansion from 727 million barrels to 1.0 billion barrels will begin in FY 2008 with land acquisition activities. The request also funds National Environmental Policy Act (NEPA) activities associated with the further expansion of SPR capacity to 1.5 billion barrels.

The EPACT 2005 included authorization for a new **Loan Guarantee Program**. The Department requests $19.9 million in funding in FY 2009 for administrative expenses to operate the Office and support personnel and associated costs. This request will be offset by collections in the same amount, as authorized under EPACT 2005. In addition, during fiscal years 2008 through 2011, commitments to guarantee loans under Title XVII of the EPACT 2005 will total $38.5 billion. In the Energy and Water Development and Related Agencies Appropriations Act of 2008, Congress authorized the Department to issue loan guarantees under the Title XVII program until September 30, 2009. The FY 2009 budget now seeks to extend that authorization through FY 2010 and 2011 and specifies amounts and uses of loan guarantee authority for those periods consistent with Congressional guidance accompanying the FY 2008 Appropriations Act. Of the total provided, $20.0 billion will be available through fiscal year 2010 to support projects such as Uranium Enrichment, Coal Based Power, Advanced Coal Gasification, Renewables, and Electricity Delivery. The remaining $18.5 billion will be available through FY 2011 to support nuclear power facilities. The $38.5 billion provided in FY 2008 through 2011 will be in addition to the $4.0 billion in authority provided in FY 2007 under P.L. 110-05 Section 20320(a) for a total loan volume limitation of $42.5 billion.

Reliable energy information plays a critical role in promoting efficient energy markets and informing the public and policy makers. This budget requests a total of $110.6 million for the **Energy Information Administration** to improve energy data and analysis programs, reflecting a 16 percent increase over the FY 2008 enacted level.

The FY 2009 budget requests $301.5 million for the **Advanced Fuel Cycle Initiative**, the technology development element of the Global Nuclear Energy Partnership (GNEP). The request supports research and development activities focused on methods to reduce the volume and long-term toxicity of high-level waste from spent nuclear fuel, reduce the long-term proliferation threat posed by civilian inventories of plutonium in spent fuel, and provide for proliferation-resistant technologies to recover the energy content in spent nuclear fuel.

Recognizing the potential of nuclear energy, the President announced GNEP in February 2006. GNEP seeks to bring about significant, wide-scale use of nuclear energy through the development of better, more efficient and proliferation-resistant nuclear fuel cycles while reducing the volume of nuclear waste requiring ultimate disposal.

GNEP will build upon the Administration's commitment to develop nuclear energy technology and systems and enhance the work of the United States and our international partners to strengthen nonproliferation efforts. The GNEP strategy will accelerate efforts to:

- Provide abundant energy without generating carbon emissions or greenhouse gases (GHG);
- Recycle spent nuclear fuel to minimize waste and reduce proliferation concerns;
- Enable developing nations to safely and securely deploy nuclear power to meet their energy needs;
- Increase energy recovery from spent nuclear fuel; and
- Reduce the number of required U.S. geologic waste repositories to one for the remainder of this century.

Through GNEP, the United States will work with key international partners to develop new recycling technologies. Improving the way spent nuclear fuel is managed will facilitate the expansion of civilian nuclear power in the United States and encourage civilian nuclear power internationally to evolve in a more proliferation-resistant manner. The United States and other countries having the established infrastructure could arrange to supply nuclear fuel to countries seeking the energy benefits of civilian nuclear power, and the spent nuclear fuel could be returned to supplier countries for eventual disposal in international repositories. In this way, foreign countries could obtain the benefits of nuclear energy without needing to design, build, and operate uranium enrichment or recycling technologies to process and store the waste.

GNEP would also help resolve America's nuclear waste disposal challenges. By recycling spent nuclear fuel, the heat load and volume of waste requiring permanent geologic disposal would be significantly reduced, delaying the need for another repository in addition to the one at Yucca Mountain for the remainder of this century.

Beginning in FY 2008 in accordance with the Consolidated Appropriations Act, 2008, the Office of Nuclear Energy is funding the MOX Fuel Fabrication Facility, which was previously funded by the National Nuclear Security Administration's (NNSA) Nuclear Nonproliferation program. In FY 2009, the Department funds the **MOX Fuel Fabrication Facility** program within the Office Nuclear Energy under the Other Defense activities account at a request of $487 million.

To support the near-term domestic expansion of nuclear energy, the FY 2009 budget seeks $241.6 million for the **Nuclear Power 2010** program to support cost-shared, near term technology development and licensing demonstration activities with industry that focus on enabling an industry decision by 2010 to build a new nuclear plant. To this end, the program will continue to support industry interactions with the Nuclear Regulatory Commission on new plant license applications, as well as first-of-a-kind design finalization for standardized reactor designs.

The technology focus of the Nuclear Power 2010 program is on Generation III+ advanced light water reactor designs, which offer advancements in safety and economics over older designs. If successful, this 7-year, 50-50 industry cost-shared program could result in a new nuclear power plant order by 2010 and a new nuclear power plant constructed by the private sector and in operation by 2015.

EPACT 2005 authorizes DOE to enter into contracts with the first six sponsors that are issued a license and begin construction of new nuclear facilities and meet all contractual conditions to provide risk insurance for certain regulatory and litigation delays in the full power operation of their facility. Up to $500 million in coverage is available for the initial two licensed plants for which construction is started and up to $250 million is available for the next four plants. The program will allow DOE to offer **standby support/risk insurance** to protect sponsors of the first new nuclear power plants against the financial impact of certain delays that are beyond the sponsors' control. In FY 2009, the Department may issue conditional agreements for standby support to sponsors of new nuclear power plants.

The FY 2000 budget request includes $70 million to continue the development of next-generation nuclear energy systems known as "**Generation IV** (GenIV)." These next-generation technologies will enhance the safety, cost-effectiveness, and proliferation-resistance of nuclear power, while harnessing its potential to generate hydrogen for use as a fuel. Gen IV's FY 2009 resources will be primarily focused on long-term research and development of a gas-cooled very-high temperature reactor, the reactor technology of choice for the Next Generation Nuclear Plant (NGNP) project.

STRENGTHENING U.S. SCIENTIFIC DISCOVERY, ECONOMIC COMPETITIVENESS, AND IMPROVING QUALITY OF LIFE THROUGH INNOVATIONS IN SCIENCE AND TECHNOLOGY

Today our nation's ability to sustain a growing economy and a rising standard of living for all Americans depends on continued advances in science and technology. Scientific and technological discovery and innovation are the major engines of increasing productivity and are indispensable to ensuring economic growth, job creation, and rising incomes for American families in the technologically driven 21st Century. Today it is especially vital that nations around the globe -- not only the developed nations but also the largest developing ones -- increase their strategic national investments in scientific research with an eye to global economic competition.

The Science program at the Department of Energy delivers discoveries and scientific tools that transform our understanding of energy and matter and advance the national, economic, and energy security of the United States. Science is a primary sponsor of basic research in the United States, leading the nation to support the physical sciences in a broad array of research subjects in order to improve our energy security and address issues ancillary to energy, such as climate change, genomics, and life sciences. In FY 2009, the Department requests $4.7 billion, an increase of 18.8 percent over the enacted FY 2008 appropriation, to continue to invest in science research that supports the American Competitiveness Initiative.

The **High Energy Physics** ($805.0 million) program conducts **basic** research on the nature of matter and energy at its most fundamental level, seeking to understand the universe by investigating the most basic constituents of matter and energy and exploring the nature of space and time, and probing the forces that bind them together. Support is provided for operation of the Tevatron and Neutrinos at the Main Injector (NuMI) beam line which are both located at Fermi National Accelerator Laboratory (Fermilab). In addition, the request supports the research of U.S. scientists at the Large Hadron Collider in Switzerland ($72.5 million) and the U.S. involvement in the global research and development effort for a potential International Linear Collider ($35 million). The program also funds non-accelerator physics to investigate dark energy and dark matter, supernovae, solar neutrinos, black holes, and other topics, including support for the Joint Dark Energy Mission (JDEM) in partnership with NASA.

The **Nuclear Physics** ($510.1 million) program conducts research to understand the structure and interactions of atomic nuclei and the fundamental forces and particles of nature in nuclear matter in terms of their fundamental constituents. Support is provided for operation of the Relativistic Heavy Ion Collider ($161.00 million), which enables us to glimpse conditions of the very early universe, and the Continuous Electron Beam Accelerator Facility (CEBAF) ($106.4 million) which provides insight into the quark structure of matter.

The **Biological and Environmental Research** (BER) ($568.5 million) program provides the environmental and biological knowledge that promotes national security through improved energy production and use, supports the President's National Energy Plan, and conducts research to protect our environment. This research is focused in two areas: **Biological Research** and **Climate Change**. BER supports the **Genomics: GTL** program supports the most advanced biotechnology tools and techniques to probe for biological and biologically inspired solutions to Department mission challenges in energy, carbon sequestration, and environmental remediation. The FY 2009 request includes $75 million for three innovative **Bioenergy Research Centers** that will bring together multi-disciplinary teams of some of the nation's leading researchers in a mission-driven laboratory setting to probe plants and microbes at all levels (molecular, cellular, system) in an effort to crack nature's code and achieve the breakthroughs that will make biofuels production truly cost-effective on a national scale. Climate change research includes the study of the scientifically-based predictions and assessments of the potential effects of greenhouse gas on climate and the environment, and funds DOE participation in the nation's **Climate Change Science Program** ($145.9 million).

The **Basic Energy Sciences** ($1.568.2 billion) program supports research and operates facilities to provide the foundation for new and improved energy technologies and for understanding and mitigating the environmental impacts of energy use. The FY 2009 request enhances support in high priority research areas addressing both grand challenge science and basic research needs for energy-related science. One implementation strategy will be new **Energy Frontier Research Centers,** which will bring together the skills and talents of multiple investigators to enable research of a scope and complexity that would not be possible with the standard individual investigator or small group award. The **Materials Sciences and Engineering** subprogram supports basic research to explore the scientific foundations for the development of materials that improve their efficiency, economy, environmental acceptability, and safety for energy generation, conservation, transmission, and use. Applications include lighter, stronger materials to increase fuel economy in automobiles, alloys and ceramics that improve the efficiency of combustion engines, and more efficient photovoltaic materials for solar energy conversion. **Chemical Sciences**, **Geosciences**, and **Energy Biosciences** support research crucial for improving combustion systems, solar photoconversion processes, and for applications to renewable fuel resources, environmental remediation, and photosynthesis. BES supports the Advanced Energy Initiative with solar conversion and biomass production research. A major part of the BES mission is to build and operate world-class user facilities including the Spallation Neutron Source at ORNL, the world's most powerful neutron scattering facility. All five of the Nanoscale Science Research Centers, part of the **National Nanotechnology Initiative**, will be fully operational in FY 2009 with a total request of $101.2 million.

The **Advanced Scientific Computing Research** ($368.8 million) program delivers forefront computational and networking capabilities to scientists nationwide that enable them to extend the frontiers of science. Leadership in scientific computation is a cornerstone of the Department's strategy to ensure the security of the nation, and to succeed in its science, energy, environmental quality, and national security missions.

Fusion is the energy source of stars, including our own sun. The **Fusion Energy Sciences** ($493.1 million) program is the national research effort to advance plasma science, fusion science, and fusion technology -- the knowledge base required for an economically and environmentally friendly, carbon free energy. DOE is also one of seven international parties participating in the **ITER** project, an international burning plasma fusion experiment to be built in Cadarache, France. The FY 2009 request provides $214.5 million for the U.S. contribution to this international effort.

ENSURING AMERICA'S NUCLEAR SECURITY

The **National Nuclear Security Administration** (NNSA) continues significant efforts to meet Administration and secretarial priorities, leveraging science to promote national security. The FY 2009 President's budget request is $9.1 billion, essentially level with the FY 2008 appropriation, to meet defense and homeland security-related objectives:

- Transforming the nuclear weapons stockpile and infrastructure while meeting Department of Defense requirements;
- Conducting innovative programs in the nations of the former Soviet Union and other countries to address nonproliferation priorities;
- Supporting naval nuclear propulsion requirements of the U.S. Navy;
- Maintaining comprehensive physical and cyber security for facilities, employees and information by implementing and sustaining upgrades throughout the complex;
- Providing nuclear counter-terrorism and emergency response assets in support of homeland security;
- Reducing the deferred maintenance backlog and achieving facility footprint reduction goals; and
- Providing corporate management and oversight for NNSA program operations.

The United States continues a fundamental shift in national security strategy to address the realities of the 21st century. The FY 2004-directed reductions to the U.S. nuclear weapons stockpile were completed in 2007, five years early. Today's nuclear weapons stockpile is now the size envisioned for 2012, and by 2012 it will be almost 15 percent less than that -- a total that is just 25 percent of what it was at the end of the Cold War. Consistent with the Administration's Nuclear Posture Review, the Department of Energy has created a vision for a revitalized nuclear weapons complex that is significantly more agile and responsive, and will allow further reductions in the nuclear stockpile by providing an industrial hedge against geopolitical or technical problems.

In compliance with the National Environmental Policy Act, NNSA is preparing a Complex Transformation supplement to the 1996 Stockpile Stewardship and Management Programmatic Environmental Impact Statement. In January 2008, NNSA announced a *preferred alternative* for the future nuclear weapons complex infrastructure that identifies the proposed major facilities, and consolidations of missions, capabilities, and special nuclear materials. The FY 2009 budget includes funding to pursue a program

consistent with the preferred alternative, with NNSA planning to promulgate a Record of Decision in 2008.

The FY 2009 budget request of $6.6 billion for **Weapons Activities** includes programs to meet the immediate national security requirements of the stockpile, including stockpile surveillance, annual assessment, life extension programs, and warhead dismantlement. The campaigns are focused on long-term vitality in science and engineering, and on R&D supporting current and future stockpile stewardship and DoD requirements. Readiness in Technical Base and Facilities supports facilities and operations across the government-owned, contractor-operated nuclear weapons complex. A number of these NNSA programs and facilities also support scientific research users from other elements of the Department, federal government, and the academic and industrial communities.

Growth areas in the Weapons Activities appropriation include **Cyber Security** and **Nuclear Weapons Incident Response**. The Cyber Security activities increase to support a major five-year effort focused on revitalization, certification, accreditation and training across the NNSA complex. The Nuclear Weapons Incident Response program increases due to functional transfers of emergency management and counterterrorism-related activities. Defense Nuclear Security activities focus on maintaining and implementing security upgrades needed to address the DOE Design Basis Threat. A new Transformation Disposition program is proposed at $77.4 million to begin to eliminate excess NNSA facilities in concert with transformation activities.

The FY 2009 budget request for the **Defense Nuclear Nonproliferation** appropriation totals $1.2 billion. The appearance of a significant decrease is due to the final FY 2008 enacted appropriations that added about $480 million in funding above the President's request to programs in this account. In addition, the Consolidated Appropriations Act, 2008, (P.L. 110-161) shifted the funding for the Mixed Oxide (MOX) Fuel Fabrication Facility to DOE's Office of Nuclear Energy and funding for the related Pit Disassembly and Conversion Facility/Waste Solidification Building (PDCF/WSB) project to the Weapons Account. This shift represents over $600 million in funding that would have been requested within the Defense Nuclear Nonproliferation appropriation in FY 2009. These shifts do not change or diminish in any way the importance of these projects to the nation's nuclear nonproliferation efforts, and in total, the funding commitment to DOE's nonproliferation activities is $1.8 billion in FY 2009. The budget describes a shift in emphasis from work completed under the Bratislava agreement to additional **Second Line of Defense** sites, including Megaports, and continued expansion of nuclear and radiological material removal under the **Global Threat Reduction Initiative**.

In FY 2009, NNSA's nonproliferation programs will complete major activities in the **Elimination of Weapons Grade Plutonium Production** program, as well as complete upgrades associated with the agreement from the Bratislava Summit. Our focus shifts to sustainability support to Russian warhead and material sites with completed upgrades, and acceleration of projects to assist the Russian Federation and other partner countries in establishing the necessary infrastructure to sustain effective material control operations. The budget request also provides for the installation of radiation detection

equipment at an additional 49 foreign sites in 14 countries and at 9 additional Megaports, for a total of 32 ports completed.

The FY 2009 request also supports research and development on detection technology, and a new **Next Generation Safeguards Initiative** (NGSI), which aims to strengthen international safeguards and revitalize the U.S. technical base. The budget request supports continued significant expansion of nuclear and radiological material removal under the Global Threat Reduction Initiative; and initiates support of disablement, dismantlement, and verification of nuclear programs in North Korea.

NNSA continues to support the U.S. Navy's nuclear propulsion systems. The FY 2009 request for **Naval Reactors** of $828 million is an increase of about 6.9 percent over the FY 2008 appropriation. These programs ensure the safe and reliable operation of reactor plants in nuclear-powered submarines and aircraft carriers, and fulfill the Navy's requirements for new nuclear propulsion plants that meet future requirements.

PROTECTING THE ENVIRONMENT BY PROVIDING RESPONSIBLE SOLUTIONS TO THE ENVIRONMENTAL LEGACY OF NUCLEAR WEAPONS PRODUCTION

The federal government has the dual responsibilities of addressing the nuclear weapons production legacy of our past and providing the necessary environmental infrastructure for today that will ensure a clean, safe and healthy environment for future generations. As such, the Department is committed to strategic acquisitions for long-term waste treatment projects and the implementation of sound project management principles to meet our long-term cleanup commitments. In FY 2009, a total of $6.2 billion is dedicated to supporting three key pillars that set the framework for the Department to reach these goals. The first pillar is to continue the **environmental cleanup** ($5.5 billion) of contaminated Cold War sites across the country. The second pillar is to continue to provide **long-term stewardship** and to carry out our responsibilities ($186 million) to our former contractor workforce. The third pillar completes the framework by working to construct a permanent nuclear waste repository at **Yucca Mountain** ($494.7 million) to address long-term nuclear waste disposal and to defend the License Application that we will submit in 2008 to the Nuclear Regulatory Commission for authorization to construct the repository. My core principle of safe operations throughout the Department will be dynamically applied within this framework.

To deliver on the Department's obligations stemming from 50 years of nuclear research and weapons production during the Cold War, the **Environmental Management** program (EM) continues to focus its resources on those activities that will yield the greatest risk reductions, with safety as the utmost priority. To achieve a balance of risk reduction and environmental cleanup, the FY 2009 request of $5.5 billion supports the following activities, in priority order:

- Stabilizing radioactive tank waste in preparation for treatment (about 34 percent of the FY 2009 request);

- Storing and safeguarding nuclear materials and spent nuclear fuel (about 20 percent of the FY 2009 request);
- Disposing of transuranic, low-level and other solid wastes (about 14 percent of the FY 2009 request); and
- Remediating major areas of our sites and decontaminating and decommissioning excess facilities (about 23 percent of the FY 2009 request).

The Administration recognizes that EM's FY 2009 budget request of $5.528 billion is based on, and would implement, an environmental management approach under which the Department would not meet some of the milestones and obligations contained in all of the environmental agreements that have been negotiated over many years with regulators. It is also important to recognize that some upcoming milestones will be missed regardless of the approach that is chosen and its associated level of funding. Moreover, some of the relevant agreements were negotiated many years ago, with incomplete knowledge by any of the parties of the technical complexity and magnitude of costs that would be involved in attempting to meet the requirements. This incomplete knowledge, coupled with other issues including contractor performance, overly optimistic planning assumptions, and emerging technical barriers, also have impeded the Department in meeting all milestones and obligations contained in the environmental compliance agreements.

In planning its environmental cleanup efforts and developing the budget for those activities, the Department seeks to focus on work that will produce the greatest environmental benefit and the largest amount of risk reduction. The Department strongly believes that setting priorities and establishing work plans in this way is the most effective use of taxpayer funds and will have the greatest benefit, at the earliest possible time, to the largest number of people. In determining these priorities, the Department works closely with federal and state regulators, and will seek the cooperation of those entities in helping evaluate needs and focus work on the highest environmental priorities based on current knowledge, particularly where doing so necessitates modification of cleanup milestones embodied in prior agreements with DOE.

In FY 2009, EM is aggressively pursuing the consolidation and disposition of surplus plutonium and other special nuclear materials to enhance national security and to minimize the storage risks and costs associated with these materials. In addition, EM continues to make significant progress on the construction and operation of waste treatment and immobilization facilities across the complex. The budget continues shipments of remote-handled transuranic waste to the Waste Isolation Pilot Plant.

The EM program has made great strides in achieving cleanup results. Since 2001, EM has cleaned up and closed 14 sites, including three former weapons production sites -- Rocky Flats and Fernald, with Mound to be completed in FY 2008, -- as part of its risk-reduction cleanup strategy. In the fall of 2007, DOE transferred nearly 4,000 acres of its former Rocky Flats nuclear weapons production site to the Department of Interior's U.S. Fish and Wildlife Service for use as a National Wildlife Refuge. Additionally, the Rocky Flats Cleanup Team received the 2007 Service to America Medal for Science and Environment for completing the first successful cleanup of a former nuclear weapons

facility. In 2007, DOE's Waste Isolation Pilot Plant in New Mexico celebrated its 6000th safely received shipment, reached a milestone for disposal of over 50,000 cubic meters of waste and began disposing of remote-handled transuranic waste. DOE's Closure Project at Fernald, a 900-acre former uranium processing facility located in southwest Ohio -- was named the 2007 Project of the Year by the Project Management Institute.

Recognizing that cleanup completion dates at the majority of EM sites extend beyond 2013, EM is working to improve project and program management in a number of areas. EM is strengthening its project baselines, verifying the reasonableness of scope, cost and schedule of all environmental projects. These baselines will provide the basis for conducting credible analyses to better assess existing priorities and identify opportunities to accelerate cleanup work. Working collaboratively with the sites, EM is also continuing to seek aggressive but achievable strategies for accelerating cleanup of discrete sites or segments of work. In addition, functional and cross-site activities such as elimination of specific groundwater contaminants, waste or material processing campaigns, or achievement of interim or final end-states are being evaluated. Developing robust life-cycle planning capabilities, realistic near-term baselines, as well as a focused technology program, a best-in-class project management system, an acquisition strategy that promotes performance and efficiency, and a proactive human capital plan allows EM to build a reliable, high-performing organization that will continue to advance risk reduction and cleanup across all EM sites.

After the Environmental Management program completes cleanup and closure of sites that no longer have an ongoing DOE mission, post closure stewardship activities are transferred to the **Office of Legacy Management** (LM). Post closure stewardship includes long-term surveillance and maintenance activities such as groundwater monitoring, disposal cell maintenance, records management, and management of natural resources at sites where active remediation has been completed. At some sites the program includes management and administration of pension and benefit continuity for contractor retirees.

Over the last 50 years, our country has benefited greatly from nuclear energy and the power of the atom. We need to ensure a strong and diversified energy mix to fuel our nation's economy, and nuclear power is an important component of that mix. Currently more than 50,000 metric tons of spent nuclear fuel is located at over 100 above-ground sites in 39 states, and every year reactors in the United States produce approximately 2,000 additional metric tons of additional spent fuel. In order to ensure the future viability of our nuclear generating capacity, we need a safe, permanent, geologic repository for spent nuclear fuel (SNF) and high-level nuclear waste (HLW) at **Yucca Mountain**. The FY 2009 budget of $494.7 million sets us on the path to meet that goal. The funding will support continued development of a repository including:

- Robustly defending the License Application (LA) that we plan to submit to the Nuclear Regulatory Commission in 2008;
- Progression of preliminary designs for facilities required for the receipt of SNF and HLW;

- Continuing essential interactions with state, local, and tribal governments needed to support national transportation planning;
- Completing the horizontal layout of the Right-of-Way application for the Nevada Rail Line;
- Enhancing the design, staffing, and training of the OCRWM organization so that it has the skills and culture to design, license, and manage the construction and operation of the Yucca Mountain Project with safety, quality, and cost effectiveness;
- Addressing the federal government's mounting liability associated with unmet contractual obligations to move SNF from commercial nuclear plant sites; and
- Planning a compliant and well-integrated safeguards and security, safety, and emergency management program for the disposal, transportation, and management of SNF and HLW.

Designing, licensing and constructing a permanent geologic repository for spent nuclear fuel and high level waste will help resolve the challenge of safe disposal of these materials and make construction of new nuclear power plants more feasible, helping to expand our energy options and secure our economic future. In addition, a repository is necessary to support nuclear nonproliferation goals, contributing to national security objectives.

In late 2006, the Department announced its "best-achievable schedule" to initiate repository operations was in 2017. The opening date of 2017 was predicated upon enactment of pending legislation and was developed without regard to budget constraints. Given the funding levels in FY 2007 and FY 2008, the "best-achievable schedule" of 2017 for the initial operating capability date is no longer possible. There is an immediate and strong need to address the funding of the repository construction program now for FY 2009 and beyond. To ensure program success it is critical that the Administration's legislative proposal, the Nuclear Fuel Management and Disposal Act, be enacted to provide stability, clarity, and predictability to the Yucca Mountain repository project. Without funding reform, development of a credible schedule for the program is not possible.

ENABLING THE MISSION THROUGH SOUND MANAGEMENT

The Department of Energy is committed to continuing the transformation of its management culture and increasing its focus on results. The Department has continued its efforts to improve in key functional areas and is using its strategic plan as the roadmap to instill management excellence.

The Department's human capital management efforts are focused on an integrated approach that ensures human capital programs and policies are linked to the Department's missions, strategies, and strategic goals, while providing for continuous improvement in efficiency and effectiveness. The Department has revised its human capital management strategic plan to address future organizational needs, workforce size, skill gaps, performance management systems and diversity. In FY 2009, the Department

will implement key components of this strategic plan, especially critical efforts to ensure the Department's workforce has the necessary skills to carry out its critical mission. To accomplish this goal, the Department will continue to implement strategies to attract, motivate and retain a highly skilled and diverse workforce to meet the future needs of the nation in such vital areas as scientific discovery and innovation.

To continue to improve the Department's stewardship of taxpayer dollars, the Department will continue to issue audited financial statements in an accelerated timeframe and provide assurance that the Department's financial management meets the highest standards of integrity. The Department's fiscal year 2007 financial statements were reviewed by independent auditors and received an unqualified "clean" opinion. This was made possible by implementing an aggressive plan to mitigate and remediate a number of financial management challenges that were identified by the Department and its independent auditors. The Department in FY 2009 will continue its effort to build and improve its integrated business management system, I-MANAGE, with the deployment of budget execution and formulation modules.

The Department continues to make strides in improving performance. The Department and OMB have worked collaboratively to complete a Program Assessment Rating Tool (PART) review for 51 of the Department's 56 programs (91 percent). Since 2002, the Department's average PART score has steadily improved from Adequate to Moderately Effective. The Department is also leading the government in the number of Effective and Moderately Effective programs.

In FY 2007, the Department improved the quality of its performance measures. This was accomplished by evaluating 30 percent of the Department's FY 2008 performance measures against a standard set of criteria. This analysis identified a need for the Department to improve some of its performance measures to make them more outcome focused and trendable.

In FY 2008, DOE will work with OMB to improve the quality of PART performance and efficiency goals. This initiative will support implementation of Executive Order 13450, Improving Government Program Performance. The quality review will result in improved goals, more consistency between performance information in the PART and the budget submission, and improved performance measures.

To improve financial performance in project management, the Department enhanced the use of Earned Value Management (EVM) techniques that objectively track physical accomplishment of work and provide early warning of performance problems. A certification process was instituted for contractors' EVM systems to improve the definition of project scope, communicate objective progress to stakeholders and keep project teams focused on achieving progress. Currently, 70 percent of the Department's capital asset projects have certified EVM systems. In FY 2009, the Department will continue toward our goal of ensuring all projects have certified systems which will make projects far more likely to stay within planned cost and schedule.

The Department continues to strengthen information technology management by consistent execution of robust IT Capital Planning and Investment Control oversight and reporting processes designed to ensure successful investment performance, including the use of EVM Systems as appropriate, and the remediation of poorly performing investments. Through the establishment and use of an Enterprise Architecture that aligns to the Federal Enterprise Architecture, DOE has ensured that all IT investments follow a comprehensive Modernization Roadmap.

The Department continues to take significant actions to improve its cyber security posture by implementing its **Cyber Security Revitalization Plan** to address long-standing, systemic weaknesses in DOE's information and information systems. Specifically, the Department seeks to ensure that 100 percent of operational information technology systems are certified and accredited as secure and that the Department's Inspector General has rated the certification and accreditation process as "satisfactory." Additional steps will be taken to ensure that electronic classified and personally identifiable information are secure.

To manage the Department's large real property portfolio requires reliable data. The Department has improved its Facility Information Management System and satisfied the Federal Real Property Council's goal of 100 percent reporting of all data elements. Further, the Department implemented a statistical validation program to ensure the integrity of real property data and better support real property decision-making. To make continuous improvements, the Department will invest in its infrastructure to reduce overall facility square footage, improve energy efficiency and sustainability, and implement an active asset management plan to align resource needs with key Departmental goals.

CONCLUSION

I appreciate the opportunity to appear before you to present the FY 2009 budget proposal for the Department of Energy. I will be happy to take any questions that members of the Committee may have.